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ABSTRACT

The validity of some theoretically-derived vocational diagnostic signs was examined to learn if a person's self-knowledge, occupational knowledge, and decision-making ability were predictable. Diverse samples of high school juniors (N = 1005), college juniors (N = 692), and employed adults (N = 140) were administered the Self-Directed Search (the source of the diagnostic signs) and the criteria for validating the signs (The Career Maturity Inventory, a decision-making task, questionnaire items about vocational choice, scales measuring identity, anomy, originality, and interpersonal competency). The signs for good decision-making ability (consistency and differentiation of the SDS profiles) predicted scores on the decision-making task more efficiently than any non-SDS variables. In contrast, the signs concerned with self and occupational knowledge had no convergent or discriminant validity. The results for the decision-making signs, however, imply some immediate practical applications and some potentially valuable theoretical investigations. (Data tables and a 21-item bibliography are included in the report.) (Author/AG)

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A DIAGNOSTIC SCHEME FOR SPECIFYING VOCATIONAL ASSISTANCE

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Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three programs to achieve its objectives. The Schools and Maturity program is studying the effects of school, family, and peer group experiences on the development of attitudes consistent with psychosocial maturity. The objectives are to formulate, assess, and research important educational goals other than traditional academic achievement. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. The Careers and Curricula program bases its work upon a theory of career development. It has developed a self-administered vocational guidance device and a self-directed career program to promote vocational development and to foster satisfying curricular decisions for high school, college, and adult populations.

This report, prepared by the Careers and Curricula program, examines the validity of some theoretically-derived signs for diagnosing the kinds of vocational assistance needed by people.

Abstract

The validity of some theoretically-derived vocational diagnostic signs was examined to learn if a person's self-knowledge, occupational knowledge, and decision-making ability were predictable. Diverse samples of high school juniors (N = 1005), college juniors (N = 692), and employed adults (N = 140) were administered the Self-Directed Search (the source of the diagnostic signs) and the criteria for validating the signs (The Career Maturity Inventory, a decision-making task, questionnaire items about vocational choice, scales measuring identity, anomy, originality, and interpersonal competency). The signs for good decision-making ability (consistency and differentiation of the SDS profiles) predicted scores on the decision-making task more efficiently than any non-SDS variables. In contrast, the signs concerned with self and occupational knowledge had no convergent or discriminant validity. The results for the decision-making signs, however, imply some immediate practical applications and some potentially valuable theoretical investigations.

Introduction

Most forms of vocational assistance such as vocational counseling, computerized guidance systems, placement services, and career education use standard procedures to assist people. When these routine procedures fail to produce the desired results, the counselor, placement officer, educational program, or computer program attempts to identify the difficulty and to provide a more useful treatment or experience: personal counseling, occupational information, special training, review of last module or some other treatment.

By and large these diagnostic activities are the outcome of a counselor's judgment or rule-of-thumb procedures programmed to keep computers from spinning their reels forever. Although several diagnostic systems for vocational problems have been proposed, they have received little empirical support and even less use by practitioners (Crites, 1969 b). We need more useful diagnostic schemes to identify the nature of a person's vocational decision-making problems and to specify the most efficacious treatment. Such a scheme would improve the quality and efficiency of vocational assistance in many settings.

The purpose of the present project was to validate a diagnostic scheme proposed earlier (Holland, 1973). This scheme was developed (1) to specify the nature of a person's vocational decision-making assets and deficits, and (2) to suggest some remedial activities and procedures. This report is an attempt only to validate the proposed diagnostic signs: Do people with well-defined interest profiles have a clear sense of identity? Do people with flat profiles need special

help? The usefulness of the diagnostic signs in applied settings will require another study in which the diagnostic signs are used to select remedial procedures. If the signs are useful, that evaluation should show that vocational programs using these diagnostic signs become more efficient and more satisfying to both clients and sponsors.

The Diagnostic Scheme

The diagnostic scheme is an outgrowth of a theory of careers (Holland, 1959, 1966, 1973) and its related research. The theory implies that the profile of a person's resemblances to each of six personality types is indicative of a person's vocational assets and liabilities. For example, "consistent" and "well-defined" interest inventory profiles are signs of stability of vocational choice, decision-making ability, interpersonal competency, and maturity of vocational attitudes. In contrast, "inconsistent" and "poorly-defined" interest profiles go with instability of vocational choice, poor decision-making and lack of interpersonal competency.

These hypotheses about interest profile characteristics have been arranged to form the three-category diagnostic scheme shown in Table 1. This scheme suggests that vocational choice depends upon self-knowledge, occupational or environmental knowledge, and the ability to translate such knowledge into appropriate choices or actions. In simple terms, a person who can make good vocational decisions understands himself, knows about the occupational world, and acts appropriately upon these perceptions of himself and his future possibilities. In contrast, a person who makes poor choices or is unable to choose may be deficient

in one or more of these categories.

Insert Table 1 About Here

Table 1 elaborates these ideas. The column headings indicate the state of a person's knowledge and translation potential, the diagnostic signs assumed to be associated with the presence of various personal characteristics, the criteria used to validate the diagnostic signs, and the treatments proposed to remedy a person's vocational deficits or needs.

The diagnostic signs have been defined in terms of the individual and summary profiles included in the Self-Directed Search (Holland, 1972). These six variable profiles of activities, competencies, two sets of self-ratings, occupations, and a summary profile estimate a person's resemblance to each of six occupational types. Consistency of the occupations profile (contained in the SDS) follows the identical procedure. The six Occupations Scales in the SDS are also the first six scales of the Vocational Preference Inventory (Holland, 1965).

Method

The plan of analysis was twofold: (1) to correlate the diagnostic signs with external criteria to learn if the signs obtained from a person's SDS profile are associated with expected personal characteristics, and (2) to repeat these analyses at three different age levels to demonstrate that the diagnostic scheme holds for persons of different ages and that the more favorable diagnostic signs increase with each increase in age.

Diagnostic Signs

The Self-Directed Search (Holland, 1972) was used to generate the diagnostic signs for each person. The SDS is especially useful for this purpose, because the SDS and the diagnostic scheme are direct products of the same theory and use the identical constructs.

1. Consistency of a person's SDS profile was defined according to the hexagonal model proposed earlier (Holland, 1973). Persons whose two highest summary scores were adjacent, alternate, or opposite on the hexagon received consistency scores of 3, 2, and 1, respectively.

2. Differentiation of a person's SDS profile was defined as the absolute difference between the highest and lowest Summary Scores. Differentiation of the Occupations profile follows the same rule.

3. A person's interpersonal competency was estimated in three ways: (1) totaling a person's self-ratings in the Self-Estimate section of the SDS, (2) using his Social Competency Score, and (3) using his Enterprising competency score.

4. Complexity of outlook was defined as a person's Artistic Summary Score.

5. Commonness of a person's two highest Summary Scores was scaled in two ways using a national sample of college students (4,074 men and 4,283 women): (1) Commonness of each two-letter permutation was estimated by dividing its observed frequency by the total N and multiplying by 1000. The resulting index is the commonness of a code per 1000. (2) The same data were used to rank the 30 possible codes into 15 ranks.

6. Profile similarity was defined as the average rank order correlation among the five profiles (Activities, Competencies, Occupations and the two

sets of self-ratings) in a person's Self-Directed Search. The five profiles should be more highly correlated for people who are more rather than less integrated. More concretely, a high average intercorrelation means that a person's preferred interests, self-ratings, and competencies are consistent with one another. In addition, profile similarity scores will be positively correlated with a person's SDS differentiation score. This outcome must occur because a high SDS differentiation score requires that a person's individual profiles be well-differentiated.

Two kinds of criteria were used to validate the diagnostic signs: (1) well-established scales (with one exception) were used to learn if the signs measured the construct in question and (2) quasi-performance measures were used to test a person's ability to make good decisions.

Criterion Scales. The following scales were selected to establish the construct validity of some diagnostic signs. These scales were selected because of their well-established construct or content validity, reliability, appropriateness for a wide age range, and because of their brevity. These scales included:

1. Knowing About Jobs. This occupational information test is from the Career Maturity Inventory (Crites, 1973). It has internal consistency coefficients which average about .85 and has marked content validity.

2. The Interpersonal Competency Scale (Holland & Baird, 1968b). This 20-item true-false scale has moderate internal consistency and retest reliability and substantial construct validity. For a one-year interval, retest correlations equal .63 and .67 for men and women in three different colleges.

3. The Preconscious Activity scale (Holland & Baird, 1968a). This 38-item true-false scale has moderate internal consistency and retest reliability. Its construct validity is well-established. Its highest correlations are with Barron's (1953) Complexity-Simplicity Scale (.53 and .53 for 689 men and 340 women in a national sample of high school students).

4. Anomy Scale (McClosky & Schaar, 1965). This 9-item scale scored agree or disagree was used with a true-false format. McClosky and Schaar obtained reliability and substantial construct validity using two large samples and many criteria (MMPI, CPI, social status, attitude scales, etc.).

5. Short and long forms of the Vocational Attitude test from the CMI (Crites, 1973). The short form contains 17 items having the highest average zero-order correlations with the total scale across all grade levels (Crites, 1969). Both scales have moderate internal consistency and construct validity.

6. Knowing Yourself. This self-knowledge test is concerned with one's vocational potential. This competency scale from the CMI (Crites, 1973) has moderate internal consistency. Construct validity is weak but promising.

7. Identity Scale. This scale was developed especially for this study when we could not locate a good identity measure of about 10 to 20 items. The present scale was initiated by using the identity factor (4 items) from the Psychosocial Maturity Inventory (Greenberger et al., 1971) and by creating 11 other items to assess identity in terms of Holland's theory. For example, identity is conceived as a clear knowledge of one's competencies, preferred activities, interests, and vocational goals. This scale has satisfactory internal consistency, but its retest reliability was not examined. The Identity Scale appears to have a clear construct validity according to its correlations with other scales and indices in this study.

Quasi-Performance Indices. All diagnostic signs were also examined for their ability to predict a person's score on four indices or scales which we have called quasi-performance measures. These indices are assumed to be related to the ability to make good vocational decisions. They include the following four measures:

1. A questionnaire item asks a student if he has made at least a tentative vocational choice:

I have made a tentative occupational choice or I am currently employed full-time True or false?

2. Another item asks about satisfaction with choices:

How satisfied are you with your present job or your choice of an occupation? (Check one of the following.)

_____1. Well satisfied with choice

_____2. Satisfied, but have a few doubts

_____3. Not sure

_____4. Dissatisfied, but intend to remain

_____5. Very dissatisfied and intend to change

_____6. Undecided about my future career

3. An agreement index (Zener & Schnuelle, 1972; Holland, 1972) was used to estimate the agreement between a person's current vocational aspiration and the group of vocations implied by his SDS assessment. This agreement index provides a 7-step scale based on the inverse probability of agreement between two three-letter codes. This index is especially valuable because it spells out objectively the degree of agreement in terms of the same theory used to develop the diagnostic system. (See Appendix E).

4. Translation Task. The following item was used to secure an estimate of a person's translation ability.

List all the jobs or occupations you could do and would like, if you had enough money to get the necessary training, and if you could get that job when you finished your training or education.

I could do and would like the following kinds of jobs: (space provided for a list of ten)

The translation task was scored in two ways: (1) Using the Zener & Schnuelle technique, each occupation listed was scored for its agreement with the person's SDS summary code, and these were summed to obtain a total agreement score (the Total Translation Score). (2) An average agreement score was obtained to eliminate the effect of response frequency so that the accuracy or quality of a person's translation ability is emphasized (Average Translation Score).

The reliabilities of the criteria were estimated by retest if possible. If the retest data were not available, the Hoyt and KR_{21} internal consistency measures were used in that order. In general, the evidence about these scales and signs reveals that they are moderately reliable. Estimates for a few scales and criteria were not available. These data are presented in Table 2.

Insert Table 2 About Here

Student Explanation

To secure a better understanding of people's explanations for their indecision or dissatisfaction, people who responded to alternatives 3, 4, 5, or 6 of the following questionnaire item were asked to respond further to

other statements:

Questionnaire Item - How satisfied are you with your present job or your choice of an occupation? (Check one of the following).

_____1. Well satisfied with choice
_____2. Satisfied, but have a few doubts
_____3. Not sure
_____4. Dissatisfied, but intend to remain
_____5. Very dissatisfied and intend to change
_____6. Undecided about my future career

Further response - Try to answer the following statements as true or false. I am undecided or dissatisfied with my choice of an occupation or my current occupation because:

	(1)	(2)
I don't know what my major strengths and weaknesses are.	T	F
I don't know enough about what workers do in various occupations.	T	F
I don't know enough about employment opportunities.	T	F
I am uncertain about my ability to finish the necessary education or training.	T	F
I am uncertain about the occupation I could perform well.	T	F
I don't have the money to do what I would really like to do.	T	F
I am uncertain about the occupations I would enjoy.	T	F
I am not sure that my present occupational choice or job is right for me.	T	F
I don't have to make a decision right now.	T	F
I doubt if I have the ability to make a good vocational decision right now.	T	F
I don't know enough about the special kinds of people who enter different occupations.	T	F
I am sometimes interested in occupations which I am often not qualified to do well.	T	F
If I had to make an occupational choice right now, I am afraid I would make a bad choice.	T	F

Responses to these items were correlated with the scales described earlier.

Administration and Sampling

The criteria for assessing the validity of the diagnostic signs were assembled to form the Life Plans Inventory (LPI). This inventory and the Self-Directed Search were administered to all participants. Some participants

also took the Career Maturity Inventory (CMI). The LPI was always administered first, because the SDS has a demonstrated effect upon a person's vocational aspirations (Zener & Schnuelle, 1972; Redmond, 1972; Long, 1972). The LPI was followed by the SDS and then the CMI.

The sampling plan was as follows:

1,000 high school juniors

1,000 college juniors

1,000 adults, 25 years or older

In addition, we attempted to secure a rectangular distribution of types to test the criteria across types; and we attempted to secure a broad distribution of SES levels and geographical locations within each age level. A representative sample would be more useful in making generalizations but would allow us to test only signs for two or three types per sex. For example, 80% of a representative sample of males would be Realistic types while less than 2% would be Artistic types; similar gross differences would occur in a representative sample of women. Table 3 gives the origins and parents' average educational level for each sample.

Insert Table 3 About Here

The small adult sample was the outcome of an unreceptive social-political climate and our own inability to foresee the fact that working adults would be hesitant in responding to the study. That sample provides at best a simple, accidental cross-validation of the findings at the younger age levels.

Results

The data analyses were of three kinds: simple correlations to test the validity of the diagnostic signs, regression analysis to learn how efficiently we could predict translation ability, and age comparisons on all variables. Only the pertinent data are presented in the following tables.

Sign validity

The product-moment correlations among all variables for the high school, college, and employed adult samples were computed. Tables 4, 5 and 6, which were extracted from the complete 32 by 32 correlational matrices, show the correlations between all predictor variables (diagnostic signs and other scales) and the four estimates of a person's translation ability (satisfaction with current vocational aspiration, decided upon a choice, agreement between current occupational choice and SDS code, and average translation score).

The correlational patterns in Tables 4-6 suggest that the ability to make good vocational translations is correlated most of all with the following diagnostic signs and scales: Differentiation (SDS), Profile Similarity, Common Code (SDS), Conventional Summary Scale (SDS), Consistency (SDS), and Investigative Summary Scale (SDS). All other signs and scales had smaller and more unreliable relations with the translation criteria. In short, there is some evidence that the diagnostic signs hypothesized for translation or

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Insert Tables 4-6 About Here

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decision-making ability in Table 1 have some validity. Among these, differ-

entiation of the SDS summary profile and the five subprofiles (Activities, Competencies, Occupations, and the two sets of Self-Ratings), and the Commonness of the SDS Summary Code appear most important. Another pattern of findings seems important: the signs or scales which predict whether or not a person has made a choice ("Decided") and is satisfied with that choice ("Satisfied") rarely predict the other criteria of translation--agreement between vocational aspiration and SDS Summary Code, or average translation score. Being "decided" and "satisfied" is positively associated with the Identity Scale most of all and to a lesser degree with the Vocational Attitude Scale and other CMI scales. Conversely, the best translation signs (Differentiation and Profile Similarity of the SDS) do not predict who is "decided" or "satisfied."

These divergent patterns of results may occur because the first two criteria of translation lack any external assessment of the quality of the person's decision-making, whereas the last two criteria involve a comparison with the person's personality type to assess quality.

The analyses in Tables 4-6 were repeated for individual student types if the N equaled 70 or more. These analyses were performed because the SDS summary scores had relatively moderate correlations with the translation criteria. In short, we needed to know if translation ability and its assumed diagnostic signs were independent of a person's type. These simple correlational analyses are presented in Tables A-1, A-2, and A-3 in Appendix A. The tables show that the overall pattern of results remains about the same when we control for type. If anything, the results suggest that the more a person resembles a particular type, the more likely he is a

good translator in the same vocational area. This finding appears to be another indication that differentiation is a sign of translation ability.

The validities of the signs for self and occupational knowledge are reported in Tables B-1 and B-2 in Appendix B. These tables show the correlations between the diagnostic signs and the criteria (self and occupational knowledge) along with three variables most closely associated with the criteria. None of the proposed diagnostic signs has any validity. To be exact, the proposed signs have little or no relation to their criteria. In other words, the consistency and differentiation of the SDS and VPI profiles are not related to self or occupational knowledge. In addition, measures of complexity of outlook (the Artistic and Realistic Scales, and the Preconscious Activity Scale) were unrelated to being "decided."

Student Explanation

To secure a better understanding of people's explanations for their indecision or dissatisfaction, responses to each statement in the student explanation portion of the LPI were correlated with selected variables and scales. Tables C-1 to C-4 in Appendix C summarize these data for the high school and college samples. The adult sample was not used because it contained only 12 undecided persons.

The correlations in Appendix C are characterized by several distinctive trends: (1) most student explanations or rationalizations of their indecision are negatively correlated with the Identity Scale. This trend holds for most individual statements across all four samples (college and high school men and women). In addition, the individual items form a scale (except for two weak items) that has its highest correlation

(see last column of tables C-1 to C-4 for the correlations between items and the total reasons checked) with the Identity scale. Interpersonal Competency is also negatively correlated with number of reasons for indecision as is the Occupational Information Scale (CMI). (2) A person's total or average translation score is only occasionally significantly correlated with any of the student explanations or the total numbers of reasons checked. In short, identity and interpersonal competency are related to rationalizations about choice but neither have more than one significant correlation with the agreement or translation task.

Regression Analyses

Several regression analyses were performed to learn how efficiently a person's translation ability could be predicted, and to learn if the regression formula were similar from sample to sample.

Some estimates of our ability to forecast a person's translation ability were obtained by forcing the 13 most likely predictors into a multiple regression analysis on the average translation score. These analyses were done by sex for the high school and college samples. The adult sample was not used because its size was so small. These analyses revealed that the multiple R's for 13 variables ranged only from .35 to .48 across four samples. In addition, the standardized regression weights bobbed up and down like corks in the sea.

A second regression analysis was performed to learn if a simpler set of non-duplicating theoretical signs would produce more stable regression formula across all four samples and without any substantial loss of predictive efficiency. For this purpose, a group of nine variables was used. Table 7 shows that the multiple correlations for most variables are

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Insert Table 7 About Here

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about as large as those observed earlier for 13 variables, and equally important, the standardized regression weights are relatively stable across samples--especially the weights for the Investigative, Differentiation, Social, Self-Estimate, and Consistency scales or indices. In plain English, good translators are more interested in science (Investigative) and education (Social), less interested in business (Conventional and Enterprising occupations), have consistent and well-differentiated SDS profiles, and evaluate themselves highly (sum of the self-estimates). This pattern holds for both men and women in high school and college.

Age Comparisons

The average scores on selected signs and variables were compared across all three age levels (high school, college, and employed adult) and by sex, for two reasons: (1) one test of validity for some diagnostic signs is that they are age-related, and (2) diagnostic signs should be insensitive to both sexual and social status. To accomplish these purposes, a multivariate analysis of variance was performed using the variables shown in Table 8.

Insert Table 8 About Here

Because the sample sizes are large, the mean differences are nearly always statistically significant, but the magnitude of the differences is usually small or trivial. The largest differences, which also increase with each increase in ages, are:

(1) Being "decided" about a job or vocational choice.

(2) Having a well-defined (differentiated) occupations profile in the SDS.

(3) Having high self-estimates (sum of self-estimates).

The remaining differences are trivial or non-linear with respect to age. The correlational results obtained in the process of performing the MANOVA also indicate that the correlational results in earlier tables cannot be attributed to differences in age, sex, or social status (estimated by father's occupation). The correlations in Tables 4-6 usually remain the same when the effects of age, sex, and father's education are removed (within cell correlations are adjusted for father's education). Some sex differences remain. The largest difference appears to be the result of methodological problems (women have very high commonness scores relative to men, but the original distributions of commonness differ greatly for men and women--women have a much more skewed distribution. The other differences--men have much higher Realistic scores than women, and women have higher A, S, and C scores--are replications of much common knowledge about sex differences in vocational interest. (See Appendix D.)

In short, these analyses suggest that the diagnostic signs usually have only minor or trivial age-relatedness and that the signs cannot be attributed to differences in sex or social status. This means that a person could get a very low or high score at any age and without regard to his sexual or social status.

Practical Potential

A few of the diagnostic signs were applied to the data to secure more concrete estimates of their relative efficiency. These analyses are shown

in Table 9. They reveal that although the signs are only moderately efficient (as the regression analyses indicated earlier), they may be helpful in identifying people at the extremes of decision making potential--those who require either superficial or extensive assistance.

Insert Table 9 About Here

People at the lowest level of decision-making potential can be supplied expensive and elaborate services, and those at the highest level could be given only superficial assistance.

Discussion

The results suggest that a few diagnostic signs predict a person's ability to make good vocational decisions at a relatively low level of efficiency. These signs include differentiation (the definition of a person's profile), profile similarity (the average intercorrelation among a person's five subprofiles), consistency (the degree to which a person's highest profile scores are psychologically compatible), and the Conventional, Investigative, and Social Summary Scales (SDS). These outcomes support what most counselors have assumed for many years--people with sharp, well-defined profiles appear to cope with their vocational problems more effectively than people with ill-defined or flat profiles.

Along with the main findings, three other outcomes merit emphasis. First, the Vocational Attitude scale (CMI) predicts "decidedness" or "satisfaction" with choice but does not predict the more stringent criteria (agreement between SDS assessment and current vocational choice

or good alternatives in the translation task). Second, the theoretically-based diagnostic signs predict the more stringent criteria but not "decidedness" or "satisfaction" with choice. Third, decided and undecided people translate equally well. "Undecided" is related to low identity, but identity is not significantly related to the stringent translation criteria although it is positively related to being decided and satisfied about one's choice. Interpersonal competency is related to being "satisfied" but only in the college sample. Finally, the results imply that it is important to distinguish between those who are knowledgeable about decisions and have the "proper" attitude, and those who make good decisions.

The main results are consistent with the results of several related studies. The findings which stimulated the present investigation (Holland, 1968) are reinforced. In that longitudinal study, stability of vocational choice was positively associated with a well-defined (differentiated) and consistent Vocational Preference Inventory profile (see Holland, 1968, Table 27, p. 30). Using a nationally representative sample, Holland, Sorensen, Clark, Nafziger and Blum (1973) have also shown that the consistency of the code for a man's first full-time job is positively correlated with his occupational achievement 5 and 10 years later.

Some other findings appear related to more remote research. The positive correlation between a person's Investigative scores and translation scores as well as the negative correlation between Conventional scores and average translation scores appear in line with the relation between vocational interests (SVIB scales) and objective tests of perception. Crutchfield, Woodworth, and Albrecht (1958) found positive

correlations between science interests and perceptual measures of flexibility and independence. In contrast, they usually found negative correlations between these perceptual test scores and social and business interests. Note that these trends resemble the patterning of SDS scores and translation scores in Tables 4-6. These findings imply that types differ in the ways they perceive the world and also differ in the accuracy of their perceptions. Consequently, it is possible that some types make better vocational decisions than others because they perceive themselves and the world more accurately.

The theoretical implications of the present study are positive and usually clear. The formulations about a person's translation ability receive some support. It appears useful to interpret "vocational maturity" as the ability to make good vocational decisions because a person possesses a consistent and well-differentiated profile. Likewise, Crites' (1969b) system for defining vocational problems is incorporated in the present formulations. Crites advocates a scheme in which the consistency of a person's interests, aptitudes, and vocational aspirations is equated with vocational adjustment. In the present diagnostic scheme, profile similarity provides a comprehensive scheme for assessing the consistency of a person's preferences, interests, competencies, and self-ratings. In addition, the finding about persons with high Investigative and low Conventional Summary scores is consistent with the theoretical conceptions of the types. Investigative persons should be more able to assess their situations and make valid judgments. In contrast, the more restricted style of Conventional persons may hinder their capacity to make good judgments about careers.

The positive results about translation signs are encouraging but not always free of ambiguity. Consistency of SDS profile is positively associated with translation ability in accordance with the theory; that is, more consistent people should have clear goals and self-conceptions so they should be more adept at vocational decisions than inconsistent persons. An alternative explanation, however, is also plausible. Because consistency and commonness are highly correlated, and because occupational types are also unequally common, persons with more consistent codes may be expected to receive higher translation scores simply by listing job titles corresponding to this unequal distribution of occupational types. Listing these same occupations would not increase the translation scores of persons with inconsistent scores in the same way. This state of affairs may only reflect an important observation about the way people and occupations are distributed in society--normal people choose typical occupations--and it in no way renders the obtained relationship less important.

The current signs and tasks need to be validated against more relevant criteria. For instance, the translation task needs to be validated with adults whose careers can be characterized according to their achievements, stability, satisfaction, or other career development indices. It is important to make certain that the translation task is anchored in the reality of careers as well as in a theoretical context. This kind of validation would help link career education activities and programs to long range objectives.

The potential practical applications appear to be numerous, although it is premature to do anything but test the current ideas to learn if they

warrant general use. Even if the signs prove to have validity in future trials, they are still too inefficient to be helpful except in extreme cases. With these provisos, several steps appear desirable:

1. Counselors need to try out the signs in their vocational counseling for whatever value they may have. Because differentiation has a high positive correlation with profile similarity ($r = .75$), counselors can inspect a person's SDS profile for the degree of differentiation and also see whether or not a person's five subprofiles have similar shapes ("high profile similarity"). These tasks require no calculations and are easy to learn with a little practice.

2. Researchers need to perform evaluation studies to learn if the signs help deliver more effective vocational assistance. For example, suppose people with high scores (see Table 9) are given group or standard services, and people with very low scores are given personal counseling. Is this kind of treatment assignment more efficient, effective, and satisfying than current procedures?

3. Can counselors and developers create curricular materials, treatments, or experience that improve a student's diagnostic signs? We have now come full circle. A person's interest profile may be a useful outcome or dependent variable as well as a treatment variable.

4. Can the Strong-Campbell Interest Inventory or the Kuder Occupational Interest Survey be used as a source of diagnostic signs? In principle, these inventories should provide similar clues to the need for vocational assistance, because the relationships among these inventories appears well-defined (Campbell & Holland, 1972; Hansen & Johannson, 1972; Holland, 1972). The signs could be easily determined, applied, and tested.

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Table 1

A Vocational Diagnostic Scheme: Validation and Implications for Treatment

Personal Status	Diagnostic Signs: SDS Signs	Diagnostic Signs: Validity	Remedies
I. Self Information			
Satisfactory	Consistent and differentiated SDS profile	Self Information (CMI) Identity scale	
Lack of information	Undifferentiated SDS profile	Self Information (CMI)(-)	Experience
Has confusing information	Inconsistent SDS profile	Identity scale (-)	Counseling
II. Environmental Information			
Satisfactory	Consistent and differentiated Occupations profile	Occupational Information (CMI)	
Lacks information	Undifferentiated Occupations profile	Occupational Information (CMI) (-)	Reading, work experiences, computer-assisted info.services
Has conflicting information	Inconsistent Occupations profile	No criterion available	Counseling
III. Ability to translate			
Makes valid translations	Consistent, well-differentiated SDS profile with common code Has High Self-Ratings and Social & Enterprising Competencies	Satisfaction with choice Agreement between SDS & current vocational choice Translation score for translation item;	
Makes Invalid Translations	Inconsistent SDS profile; Possesses Rare Code; Has Low Self Ratings and S and E Competencies	Dissatisfaction with choice	Counseling
Cannot translate (Undecided)	Undifferentiated SDS profile; Low Self Ratings and S and E Competencies; High Artistic Scale	"Undecided" questionnaire item	Experience, Counseling

Table 2

RELIABILITIES OF SIGNS AND SCALES

Sign or Scale	High School				College				Adult			
	Male		Female		Male		Female		Male		Female	
	Value	Statistic	Value	Statistic	Value	Statistic	Value	Statistic	Value	Statistic	Value	Statistic
Consistency (SDS)	.39	Retest[1]	.61	Retest[2]								
Differentiation (SDS)	.50	Retest[1]	.65	Retest[2]								
Consistency (Occupations)	.37	Retest[1]	.41	Retest[2]								
Differentiation (Occupations)	.52	Retest[1]	.69	Retest[2]								
Profile Similarity												
Commonness (SDS)	.60	Retest[1]	.70	Retest[2]								
Self-Rating (SDS)	.50	Hoyt	.49	Hoyt[4]	.46	Hoyt	.51	Hoyt	.32	Hoyt	.47	Hoyt
Social Competency (SDS)	.66	Retest[3]	.61	Retest[4]	.63	KR21	.59	KR21	.72	KR21	.36	KR21
Enterprising Competency (SDS)	.74	Retest[3]	.72	Retest[4]	.70[5]	KR21	.64	KR21	.79	KR21	.68	KR21
R-Scale Score (SDS)	.81	Retest[3]	.62	Retest[4]	.60[5]	Retest						
I-Scale Score (SDS)	.87	Retest[3]	.66	Retest[4]	.84[5]	Retest						
A-Scale Score (SDS)	.49	Retest[3]	.78	Retest[4]	.83[5]	Retest						
S-Scale Score (SDS)	.68	Retest[3]	.44	Retest[4]	.74[5]	Retest						
E-Scale Score (SDS)	.54	Retest[3]	.57	Retest[4]	.70[5]	Retest						
C-Scale Score (SDS)	.31	Retest[1]	.72	Retest[2]	.76	Retest						
Teaching Ability (SDS)	.65	Retest[1]	.71	Retest[2]								
Sales Ability (SDS)	.68	Retest	.76	Retest								
CMI Attitude	.66	KR21	.53	KR21								
Short Vocational Attitude	.32	Hoyt	.34	Hoyt	.24	Hoyt	.15	Hoyt	[6]		.23	Hoyt
Self-Knowledge (CMI)	.74	KR21	.29	KR21								
Occupational Information (CMI)	.80	KR21	.52	KR21								
Choosing (CMI)	.71	KR21	.55	KR21								
Planning (CMI)	.80	KR21	.58	KR21								
Problem Solving (CMI)	.68	KR21	.30	KR21					[6]		[6]	
Occupational Information (LPI)	.54	Retest[7]	.54	Retest[8]	.67	Hoyt	.57	Hoyt				
Preconscious Activity	.74	Hoyt	.71	Hoyt	.78	Hoyt	.80	Hoyt	.83	Hoyt	.82	Hoyt
Interpersonal Competency	.68	Hoyt	.66	Hoyt	.71	Hoyt	.71	Hoyt	.75	Hoyt	.65	Hoyt
Identity	.73	Hoyt	.77	Hoyt	.69	Hoyt	.74	Hoyt	.52	Hoyt	.72	Hoyt
Anomy	.64	Hoyt	.69	Hoyt	.70	Hoyt	.64	Hoyt	.70	Hoyt	.68	Hoyt
Satisfaction												
Decided												
Average Translation	.40	Alt.Form[9]	.51	Alt.Form[9]	.37	Alt.Form[9]	.54	Alt.Form[9]	.30	Alt.Form[9]	.66	Alt.Form[9]

1) N = 242; retested after 2-3 months.
2) N = 181; retested after 2-3 months.
3) N = 124; retested after 3-4 weeks.
4) N = 80; retested after 3-4 weeks.
5) 65 college freshmen of both sexes; retested after 7-10 months.
6) Due to very small variances, there is no evidence of reliability for these groups.
7) N = 196; retested same day.
8) N = 123; retested same day.
9) Correlation with the agreement measure.

TABLE 3

Samples, Origins, and Educational Levels

High School	Males	Females	Total	Father's Educ.[1]	Mother's Educ.[1]
			High School Sample (N = 1,005)		
Archbishop Curley (Balto., Md.)	200	-	200	3.2	2.8
Beaverton (Oregon)	75	51	126	3.6	3.1
Great Mills (Maryland)	20	15	35	2.9	2.8
Hackensack (New Jersey)	70	92	162	3.4	3.2
Mercy (Balto., Md.)	-	159	159	4.0	3.3
Notre Dame Prep. (Balto., Md.)	-	99	99	5.2	4.2
Seton (Balto., Md.)	-	127	127	3.3	3.0
West Va. Dept. Voc. Education	43	54	97	2.2	2.3
			College Sample (N = 692)		
Central Washington State	4	2	6	3.0	3.8
Idaho State	63	74	137	3.4	3.7
Iowa State	22	38	60	3.3	3.7
Luther College	12	42	54	4.4	4.0
Northwest Nazarene College	26	40	66	4.4	4.4
Northwestern University	32	3	35	4.0	3.8
Southern Oregon College	15	14	29	3.8	3.6
Virginia Polytechnic Institute	168	137	305	4.2	3.8
			Adult Sample (N = 140)		
Accidental Sample obtained from diverse sources	45	95	140	3.4	3.0

Note: Mean of responses to 7-point scale ranging from "8th grade or less" to "graduate or professional degree." Don't know and non-responses are excluded, and useful responses equaled 44 to 100% per school.

TABLE 4

Personal Characteristics and Translation Abilities of High School Juniors

Personal Characteristics	Translation Ability (Boys)				Translation Ability (Girls)			
	Satis.[1]	Decided[2]	Agree.[3]	Average Trans.[4]	Satis.[5]	Decided[6]	Agree.[7]	Average Trans.[8]
Age	00	01	-02	02	-01*	03	-03	03
Father's Education	-12	-04	-08	01	-12	-02	00	01
Mother's Education	12	04	08	07	-10	-06	00	01
Social Competency	09	02	00	-09	02	06	08	01
Enterprising Competency	11	04	-05	-08	06	09	01	-09
Teaching Ability (SR)	-04	06	-05	-06	-05	05	09	04
Sales Ability (SR)	-06	02	-08	-14*	-02	00	-11*	-18**
Vocational Attitude (CMI)	12	18**	02	05	07	38**	17*	09
Vocational Attitude (Short)	11	16**	09	10	09	16**	07	03
Self-Knowledge (CMI)	-10	-04	05	05	04	14	01	-07
Occupational Information (CMI)	01	07	08	12	19	16	02	16
Occupational Information (LPI)	-11	00	04	04	01	06	08	01
Choosing (CMI)	-04	05	07	10	10	13	12	12
Planning (CMI)	05	02	02	00	22*	11	02	11
Problem-Solving (CMI)	-02	11	02	-07	15	12	12	22*
Preconscious Activity	-02	-07	-03	-04	-01	05	04	08
Interpersonal Competency	08	06	00	-09	13*	09	00	-01
Identity	36**	32**	10	02	26**	32**	07	06
Anomy	-02	-04	-08	-11*	-06	-06	-04	00
Realistic Summary Scale	01	06	03	15**	-01	-05	-10*	-06
Investigative Summary Scale	05	00	09	22**	01	09	16**	12**
Artistic Summary Scale	-04	-12*	02	-05	-05	-09	02	11*
Social Summary Scale	-09	-09	-13*	-09	-12*	-06	01	06
Enterprising Summary Scale	-04	-06	-19**	-22**	02	-01	-18**	-21**
Conventional Summary Scale	-06	-07	-15**	-29**	03	-02	-13**	-14**
Consistency (SDS)	-01	-04	07	04	-04	-03	00	09
Differentiation (SDS)	-07	10	23**	29**	-02	07	18**	16**
Common Code (SS)	09	07	15**	29**	-10	-10*	02	13**
Self-Estimates (Sum)	08	05	-02	-12	01	12*	00	-12**
Consistency (Occupations)	-06	-06	10	09	00	-06	03	05
Differentiation (Occupations)	-04	00	11*	03	06	10*	08	04
Profile Similarity	-06	00	17**	21**	00	06	18**	20**

*< .05 level; **< .01 level.

Table 4

Note: The N's for the correlations in this table vary greatly. The footnotes indicate the range of N's for correlations involving the CMI scales and are followed by the range for all other correlations.

[1]CMI scales range from 128-129.
Other scales range from 220-251.

[2]CMI scales range from 192-195.
Other scales range from 292-339.

[3]CMI scales range from 213-216.
Other scales range from 311-408.

[4]CMI scales range from 178-181.
Other scales range from 278-316.

[5]CMI scales range from 79-80.
Other scales range from 361-399.

[6]CMI scales range from 119-120.
Other scales range from 466-524.

[7]CMI scales range from 158-161.
Other scales range from 476-597.

[8]CMI scales range from 116-117.
Other scales range from 474-500.

TABLE 5

Personal Characteristics and Translation Abilities of College Students

Personal Characteristics	Translation Ability (Men)				Translation Ability (Women)			
	Satis.[1]	Decided[2]	Agree.[3]	Average Trans.[4]	Satis.[5]	Decided[6]	Agree.[7]	Average. Trans.[8]
Age	00	01	-05	-14*	01	08	-10	-06
Father's Education	03	-07	05	03	02	-10	06	13*
Mother's Education	07	-05	01	-04	06	-05	-04	-05
Social Competency	03	00	-03	02	16**	19**	13*	15**
Enterprising Competency	04	06	-03	-04	14*	09	-02	-01
Teaching Ability	-06	-07	-05	-02	15**	26**	18**	12*
Sales Ability	00	04	-01	-05	08	10	-02	-04
Vocational Attitude (Short)	28**	19**	09	02	13*	08	13*	09
Occupational Information (LPI)	-07	10	06	12*	02	14*	02	00
Preconscious Activity	-05	-12*	-05	00	-01	-05	11*	15**
Interpersonal Competency	18**	12*	-01	06	23**	23**	04	07
Identity	39**	25**	11	06	35**	26**	10	10
Anomy	-16**	-09	-09	-04	-08	-06	-12*	-03
Realistic Summary Scale	06	07	-06	02	00	-08	-17**	-09
Investigative Summary Scale	07	02	08	17**	-05	02	-02	04
Artistic Summary Scale	03	-14*	-05	-05	-02	-10	13*	14*
Social Summary Scale	-02	-11*	-02	03	18**	10	22**	25**
Enterprising Summary Scale	-09	-04	-04	-08	03	05	-08	-10
Conventional Summary Scale	-05	08	-07	-15**	-07	01	-21**	-27**
Consistency (SDS)	-03	05	16**	23**	04	-06	21**	18**
Differentiation (SDS)	-04	06	10	22**	09	03	23**	23**
Common Codes (SS)	02	09	19**	30**	08	-03	26**	25**
Self-Estimates (Sum)	05	07	-04	-06	02	18**	-07	-04
Consistency (Occupations)	-04	00	02	08	-02	-08	16**	13**
Differentiation (Occupations)	08	02	-05	08	07	05	08	07
Profile Similarity	04	06	10	28**	04	07	22**	17**

[1] N's = 282-305
[2] N's = 321-342
[3] N's = 316-342
[4] N's = 294-318
[5] N's = 291-318
[6] N's = 319-348
[7] N's = 321-350
[8] N's = 311-335

* < .05 level.
** < .01 level.

TABLE 6

Personal Characteristics and Translation Abilities of Adults

Personal Characteristics	Translation Ability (Men)				Translation Ability (Women)			
	Satis.[1]	Decided[2]	Agree.[3]	Average Trans.[4]	Satis.[5]	Decided[6]	Agree.[7]	Average Trans.[8]
Age	-32*	-	19	18	17	-11	-26*	-14
Father's Education	16	-	-07	-15	-20	13	05	03
Mother's Education	13	-	03	-37*	-03	08	08	03
Social Competency	07	11	-01	-03	15	12	14	08
Enterprising Competency	03	13	18	08	00	13	08	00
Teaching Ability	-03	09	16	13	07	11	-03	09
Sales Ability	00	18	16	04	01	-02	-12	-07
Vocational Attitude (Short)	00	-	18	-13	03	43**	16	02
Occupational Information (LPI)	-20	70**	09	-02	01	-20	-12	-14
Precounscious Activity	24	-	01	-04	-19	-11	21	14
Interpersonal Competency	16	-	02	11	15	18	06	00
Identity	25	-	11	-13	23*	55**	21	37**
Anomy	-12	-	-15	02	-14	-20	05	12
Realistic Summary Scale	33*	-19	-30	-37*	08	-11	-20	-08
Investigative Summary Scale	06	18	13	19	-09	09	21	24
Artistic Summary Scale	21	05	-10	19	-15	-18	-01	-02
Social Summary Scale	09	-04	10	-11	17	03	-01	18
Enterprising Summary Scale	-13	08	22	01	08	-06	-20	-14
Conventional Summary Scale	-39*	15	14	-14	05	16	-07	-02
Consistency (SDS)	00	34*	03	33	03	-21	04	-14
Differentiation (SDS)	-10	08	06	09	15	04	30**	30*
Common Codes (SS)	18	13	15	44*	09	-12	06	03
Self-Estimates (Sum)	14	22	00	-05	-03	28**	08	01
Consistency (Occupations)	-14	32*	-06	37*	09	00	12	14
Differentiation (Occupations)	23	12	-10	-22	-18	02	13	-03
Profile Similarity	00	10	04	06	05	02	21	18

[1] N's = 38-42
[2] N's = 39-44
[3] N's = 40-45
[4] N's = 30-35
[5] N's = 75-85
[6] N's = 84-95
[7] N's = 84-95
[8] N's = 63-72

* < .05 level.
** < .01 level.

TABLE 7

Multiple Regression Analyses of SDS Variables on Average Translation Scores

			SDS Scales and Indexes									
Sample	R	R^2	Real.	Inv.	Art.	Soc.	Ent.	Conv.	Consist.	Diff.	Self-Estimates	N
Male H.S.	.44	.20	.17	.22	.01	.04	-.04	-.18	.07	.20	-.08	408
Female H.S.	.31	.10	-.01	.14	.09	.07	-.16	.01	.07	.12	-.08	597
Male College	.37	.14	.10	.17	-.01	.16	.00	-.05	.24	.17	-.04	342
Female College	.43	.18	-.03	.22	.14	.29	-.10	-.08	.08	.12	-.05	350

TABLE 8

The Means and Standard Deviations for All Criteria and Selected Variables for Samples of High School, College, and Employed Persons

	Males						Females					
	High School[1]		College[2]		Adults[3]		High School[4]		College[5]		Adults[6]	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Age	16.50	.70	21.75	2.83	34.15	8.42	16.47	.56	21.29	3.73	32.64	8.12
Father's Educ.	3.16	1.60	3.77	1.64	3.37	1.86	3.75	1.85	4.21	1.72	3.08	1.78
Realistic SS	8.65	4.29	7.37	4.53	5.87	4.83	2.67	2.45	2.68	2.54	2.12	2.33
Investigative	7.24	4.17	7.78	4.25	7.31	4.69	5.78	3.63	6.07	3.84	4.90	3.63
Artistic	4.43	3.68	3.83	3.58	2.84	2.63	6.70	3.63	7.45	3.60	6.65	3.57
Social	8.78	3.23	8.58	3.56	9.22	3.18	11.95	2.52	12.05	2.55	11.14	2.59
Enterprising	6.66	3.28	6.54	4.03	8.13	4.16	5.28	2.77	4.68	2.90	4.75	3.26
Conventional	4.36	3.41	4.21	3.79	4.36	3.38	5.74	4.43	4.50	3.70	7.34	4.74
Consistency (SDS)	2.19	.78	2.49	.69	2.53	.69	2.45	.57	2.59	.54	2.41	.56
Different. (SDS)	10.99	2.34	11.77	2.19	12.02	1.79	11.73	2.02	11.92	1.93	11.79	2.14
Common Code (SDS)	47.04	33.92	54.88	34.69	51.73	31.75	121.62	82.09	142.51	85.63	103.24	84.58
Self-Est. (SDS)	47.62	8.76	52.08	7.32	53.09	6.58	48.22	7.57	50.06	7.02	48.89	7.70
Consistency (Occup.)	2.39	.71	2.50	.67	2.53	.73	2.51	.63	2.61	.56	2.63	.55
Diff. (Occup.)	6.38	3.14	8.05	2.85	8.20	2.72	6.41	3.14	8.13	3.03	7.01	3.02
Profile Similarity	.45	.23	.51	.21	.56	.21	.52	.20	.53	.20	.50	.22
Satisfaction/Choice	2.24	1.13	1.89	.88	1.45	.63	1.99	.94	1.71	.73	1.89	1.06
Decided	1.52	.50	1.20	.40	1.02	.15	1.42	.49	1.12	.32	1.12	.32
Agreement	2.46	1.52	2.79	1.65	2.36	1.76	2.86	1.73	3.34	1.54	2.70	2.04
Average Translation	2.48	.97	2.46	.98	2.48	.88	2.64	.98	2.84	.87	3.32	1.40

[1] N's range from 251 to 408.

[2] N's range from 305 to 342.

[3] N's range from 41 to 45.

[4] N's range from 399 to 597.

[5] N's range from 318 to 350.

[6] N's range from 85 to 95.

TABLE 9

Predicting Translation Ability from Diagnostic Signs

	High School Juniors							
	Boys (N = 316)				Girls (N = 500)			
Positive Signs	Translation Ability Poor %	Moderate %	Good %	f	Translation Ability Poor %	Moderate %	Good %	f
0	47.0	38.2	14.7	34	41.2	41.2	17.6	51
1	47.4	43.2	8.4	95	35.4	42.5	22.0	127
2	42.4	41.4	16.2	99	30.5	46.1	23.4	128
3	17.5	45.6	36.8	57	27.1	38.6	34.3	140
4	22.6	35.5	41.9	31	16.7	37.0	46.3	54
	x^2 = 34.03, 8 df, p< .001				x^2 = 21.02, 8 df, p< .01			

	College Juniors							
	Men (N = 318)				Women (N = 335)			
Positive Signs	Translation Ability Poor %	Moderate %	Good %	f	Translation Ability Poor %	Moderate %	Good %	f
0	46.2	38.5	15.4	13	36.4	54.5	9.1	11
1	55.2	25.9	19.0	58	37.1	46.5	16.1	62
2	50.5	30.1	19.4	103	21.9	49.5	28.6	105
3	28.7	45.7	25.5	94	10.6	41.0	48.4	122
4	22.0	36.0	42.0	50	20.0	22.8	57.1	35
	x^2 = 26.99, 8 df, p< .001				x^2 = 40.44, 8 df, p< .001			

Note: Average translation scores of 0-2 are defined as "poor"; scores above 2 and less than or equal to 3 are defined as "moderate"; scores above 3 are defined as "good." The signs used to score student SDS profiles were Differentiation (scores of 12 or more), Consistency (highest two letters in profile adjacent on hexagonal model), Investigative Summary Score (7 and above for men, 6 and above for women), and Conventional Summary Score (3 and below for men, 4 and below for women).

Appendix A

Table A-1

Translation Ability and Personal Characteristics of High School Males

	Realistic Types (N = 147)				Investigative Types (N = 97)				Social Types (N - 96)			
	Sat.[1]	Decided[2]	Agree.[3]	Avg. Trans.[4]	Sat.[5]	Decided[6]	Agree.[7]	Avg. Trans.[8]	Sat.[9]	Decided[10]	Agree.[11]	Avg. Trans.[12]
Age	-10	11	-01	00	-06	03	16	21	13	-10	-26*	-18
Father's Education	-35**	-13	-27**	-12	-04	04	-11	05	05	01	01	-08
Mother's Education	00	-01	06	14	-02	03	02	08	25	01	15	-19
Social Competency	10	-10	00	-18	28	22	05	09	06	-04	17	16
Enterprising Competency	20	04	00	-08	-03	09	-03	01	13	-02	08	17
Teaching Ability	-06	-01	03	-19	-06	02	-18	05	10	26*	12	29*
Sales Ability	-05	05	-07	-12	-11	-02	-13	-17	-16	08	23*	30*
CMI Attitude	-17	20	06	-06	33*	10	15	10	39*	34**	-23	-04
Short Vocational Attitude	-03	00	-19	01	18	24*	33**	12	15	25*	06	13
Self-Knowledge (CMI)	-20	-06	20	06	05	-06	00	-08	-04	-02	02	-03
Occupational Info. (CMI)	-15	15	30*	27	04	06	05	15*	-05	-01	-04	24
Occupational Info. (LPI)	-23*	-09	-08	-10	02	00	18	25*	-17	10	-07	11
Choosing (CMI)	04	10	11	02	06	08	03	10	-18	12	-07	-12
Planning (CMI)	00	24	-07	-04	18	-05	00	-11	-10	02	-13	-05
Problem Solving (CMI)	-12	20	13	-01	03	00	-01	-13	06	24	-08	-08
Preconscious Activity	-01	-23*	-15	-15	22	13	-01	06	-10	-05	07	-14
Interpersonal Competency	16	-03	-04	-18	17	14	09	04	-08	01	02	08
Identity	41**	39**	-08	-05	28	26*	29**	15	44**	33**	16	16
Anomy	-03	-03	-09	-06	-02	-08	05	00	04	-04	-17	-19
Realistic Scale Score	-10	08	17	33**	-12	05	00	09	00	-04	-31**	-17
Investigative Scale Score	05	00	00	31**	01	16	27*	33**	00	-08	-16	-19
Artistic Scale Score	-04	-16	-05	-25*	29*	-17	06	-09	-15	01	03	15
Social Scale Score	-13	-25*	-08	-15	14	-10	-15	02	-18	-04	06	32**
Enterprising Scale Score	-07	-11	-18	-08	-35*	-15	-36**	-26*	02	00	14	20
Conventional Scale Score	-13	-04	-07	-12	-19	-16	-24*	-37**	-07	-15	-05	-11
Consistency (SDS)	08	-01	-01	12	19	16	14	14**	-07	-02	22	13
Differentiation (SDS)	-02	10	16	17	-09	18	26*	31**	-10	01	20	30*
Commonness	10	10	07	38**	14	23*	16	20	06	08	20	13
Self-Estimates	10	13	01	-26*	02	10	04	-08	03	00	05	23
Consistency Occupation	09	-04	00	11	-02	11	06	14	-04	-18	25*	14
Differentiation Occupation	04	-07	05	-09	-17	07	04	02	10	06	28*	23
Profile Similarity	07	-06	18	18	-11	-02	14	20	-08	09	22	21

* $p < .05$ ** $p < .01$

Table A-1

Note: Since a subsample was tested with the CMI, the N's for correlations in this table vary greatly. The footnotes give the range of N's for correlations involving CMI scales followed by N's for correlations involving all other scales.

1. CMI scales N = 24, other scales N = 81-89.
2. CMI scales N = 39, other scales N = 99-118.
3. CMI scales N = 44, other scales N = 99-147.
4. CMI scales N = 36, other scales N = 92-109.
5. CMI scales N = 37, other scales N = 47-55.
6. CMI scales N = 65-66, other scales N = 72-86.
7. CMI scales N = 72-73, other scales N = 83-97.
8. CMI scales N = 59-60, other scales N = 68-79.
9. CMI scales N = 40-41, other scales N = 56-64.
10. CMI scales N = 56-57, other scales N = 72-82.
11. CMI scales N = 57-58, other scales N = 77-96.
12. CMI scales N = 50-51, other scales N = 69-77.

Table A-2

Translation Ability and Personal Characteristics of College Males

	Realistic Types (N = 88)				Investigative Types (N = 86)				Social Types (N = 80)			
	Sat.[1]	Decided[2]	Agree.[3]	Avg. Trans.[4]	Sat.[5]	Decided[6]	Agree.[7]	Avg. Trans.[8]	Sat.[9]	Decided[10]	Agree.[11]	Avg. Trans.[12]
Age	-02	-16	-17	-28*	12	22	01	02	-09	00	06	-10
Father's Education	-22	-14	-10	16	15	-02	05	-01	13	-15	-06	-05
Mother's Education	-12	05	-07	02	15	03	09	-02	13	-26*	-16	-20
Social Competency	04	-05	-10	-19	00	14	04	28*	-01	04	-05	-01
Enterprising Competency	04	11	-01	-14	02	09	03	17	00	06	-03	-14
Teaching Ability	-24*	-13	-31**	-29*	-04	-04	06	08	-09	12	-13	-12
Sales Ability	18	-09	-05	-11	-02	18	00	-02	00	04	10	00
Short Vocational Attitude	38**	15	07	-06	11	27*	24*	21	24	18	08	09
Occupational Info. (LPI)	-14	13	-05	08	-13	19	21	10	-02	02	05	20
Preconscious Activity	-05	-12	-10	-12	-09	-01	-22	-10	-09	-16	-03	00
Interpersonal Competency	30*	-01	08	-16	02	29*	18	35**	24	11	-13	-16
Identity	40**	25*	19	06	31**	20	23*	28*	48**	28*	03	03
Anomy	02	08	08	16	-22	-01	-02	-05	-35**	-20	-19	-02
Realistic Scale Score	00	12	-07	20	-04	05	37**	42**	09	-17	00	-26*
Investigative Scale Score	00	12	17	37**	-04	00	18	19	-09	-25*	-05	09
Artistic Scale Score	09	-18	02	-06	04	-12	-27*	-28*	-15	-18	-12	14
Social Scale Score	03	-03	-14	-30*	06	-03	-12	12	-12	14	07	24
Enterprising Scale Score	-06	-07	-13	-28*	-03	-06	-27	-12	-01	-01	04	-03
Conventional Scale Score	-14	-02	-26*	-17	07	01	-18	-19	14	10	06	-20
Consistency SDS	-09	02	25*	30*	06	08	21	27*	04	20	-12	21
Differentiation (SDS)	-01	11	-02	20	02	04	25*	24*	-08	20	-03	25*
Commonness	-07	09	38**	43**	-06	15	37**	43**	05	17	-13	14
Self-Estimates	04	-13	-21	-15	-12	18	19	16	09	-05	-10	-17
Consistency Occupation	-07	12	03	00	06	00	-04	-02	-13	-10	-03	12
Differentiation Occupation	02	-04	-18	01	09	-12	10	19	01	07	-02	09
Profile Similarity	05	10	00	18	06	-04	23*	34**	10	25*	-02	26*

* $p < .05$ ** $p < .01$

1. N's = 70-79.
2. N's = 80-88.
3. N's = 79-88.
4. N's = 72-80.
5. N's = 70-74.
6. N's = 74-86
7. N's = 74-86.
8. N's = 79-81.
9. N's = 65-68.
10. N's = 78-80.
11. N's = 77-80.
12. N's = 62-74.

Table A-3

Translation Ability and Personal Characteristics of High School and College Females

	High School Females								College Females			
	Social Types (N = 383)				Conventional Types (N = 73)				Social Types (N = 225)			
	Sat.[1]	Decided[2]	Agree.[3]	Avg. Trans.[4]	Sat.[5]	Decided[6]	Agree.[7]	Avg. Trans.[8]	Sat.[9]	Decided[10]	Agree.[11]	Avg. Trans.[12]
Age	00	08	-03	05	05	-24	-10	-10	08	08	-04	-04
Father's Education	-12	-03	02	00	-12	09	-09	-06	00	-05	06	12
Mother's Education	-07	-06	-01	03	-23	-12	-16	-12	07	-04	-02	03
Social Competency	05	10	12*	-04	22	-10	10	19	12	16*	07	04
Enterprising Competency	09	10	00	-17*	05	14	16	08	08	00	-08	-08
Teaching Ability	00	14*	18**	10	04	02	-04	-20	20**	28**	18**	10
Sales Ability	-01	00	-19**	-22**	00	00	22	-01	00	12	-09	-10
CMI Attitude	10	44	13	00	14	22	14	04				
Short Vocational Attitude	08	18**	07	00	06	04	-21	-01	12	08	15*	12
Self-Knowledge (CMI)	02	28*	00	-12	51*	-23	05	-05				
Occupational Info. (CMI)	21	18	08	13	26	04	-18	-22				
Occupational Info. (LPI)	04	12	12*	00	10	-06	-10	-30*	00	12	01	02
Choosing (CMI)	10	15	09	06	-18	00	13	-05				
Planning (CMI)	22	09	-02	09	56*	-05	03	05				
Problem Solving (CMI)	27	25*	08	15	34	-15	27	39				
Preconscious Activity	02	08	08	12	20	-03	-20	-26*	-02	02	10	12
Interpersonal Competency	18**	11	03	-08	18	14	02	12	18*	18**	03	01
Identity	26**	34**	01	02	17	16	10	14	30**	25**	20**	12
Anomy	-06	-06	-01	04	10	09	05	-07	-09	-14*	-06	00
Realistic Scale Score	-03	-08	-09	-06	-32*	-09	-27*	-04	-02	-10	-22**	-10
Investigative Scale Score	-08	05	16**	21**	17	05	04	-27*	14	-03	-03	10
Artistic Scale Score	-02	-11	11	17*	05	-09	-18	-08	02	-08	25**	20**
Social Scale Score	-09	04	18**	16*	22	10	04	19	12	13	29**	28**
Enterprising Scale Score	07	-03	-21**	-28**	-10	15	08	13	-12	00	-14	-16*
Conventional Scale Score	-08	-07	-23**	-23**	12	15	14	45**	-06	00	-21**	-22**
Consistency (SDS)	08	-03	05	03	-24	25*	06	13	-03	-07	22**	13
Differentiation (SDS)	-03	09	19**	11	08	07	24	26*	11	12	29**	25**
Commonness	00	-04	12*	20**	29*	18	11	14	01	-11	32**	24**
Self-Estimates	-01	12	-04	-15*	01	-07	-01	-13	05	14*	-02	-03
Consistency Occupation	07	-05	10	10	-06	00	-05	-07	-01	-10	22**	18**
Differentiation Occupation	07	14*	02	01	01	-05	04	-08	11	06	09	05
Profile Similarity	04	10	14*	12	21	02	16	36**	09	13	24**	18**

* $p < .05$ ** $p < .01$

Table A-3

Note: Since a subsample of high school girls was tested with the CMI, the N's for these correlations vary greatly. Footnotes 1-8 below give the range of N's for correlations involving CMI scales followed by N's for correlations involving all other scales.

1. CMI scales N = 46, other scales N's = 224-245.
2. CMI scales N = 80, other scales N's = 240-335.
3. CMI scales N's = 105-107, other scales N's = 303-383.
4. CMI scales N = 75, other scales N's = 282-316.
5. CMI scales N's = 17-18, other scales N's = 53-56.
6. CMI scales N's = 20-21, other scales N's = 61-66.
7. CMI scales N's = 24-25, other scales N's = 56-73.
8. CMI scales N's = 21-22, other scales N's = 60-65.
9. N's = 192-208.
10. N's = 207-224.
11. N's = 207-225.
12. N's = 199-214.

Appendix B

Table B-1

Concurrent Validity of Diagnostic Signs of Self-Knowledge

Diagnostic Sign and Variables	Males				Females			
	Self-Knowledge (CMI)	Identity			Self-Knowledge (CMI)	Identity		
	High School[1]	H.S.[2]	College[3]	Adults[4]	High School[5]	H.S.[6]	College[7]	Adults[8]
Consistent (SDS)	.02	.07	.06	.07	-.05	.02	.07	-.04
Differentiated (SDS)	.07	-.01	.07	.36*	.14	.11*	.15**	.20
Vocational Attitude (CMI)		.41**			.26**	.46**		
Vocational Attitude (Short Form)			.26**				.34**	
Choosing (CMI)	.45**				.28**			
Interpersonal Competency		.42**	.44**			.42**	.50**	.48**
Teaching Ability (SR)				.42**				
Anomy						-.41**	-.38**	-.47**
Enterprising Competency				.42**				
Planning (CMI)	.44**							
Decided								.55**
Problem Solving (CMI)	.40**				.32**			
Satisfaction with Choice		.36**	.39**					
Profile Similarity				.44**				

Note: Sample sizes for these correlations vary greatly. The CMI scales were administered to a subsample of the high school juniors. The footnotes give N's for correlations involving CMI scales followed by N's for all other correlations.

1. CMI scales N's = 213-214, other scales N =216.
2. CMI scales N = 195, other scales N's = 246-339.
3. N's = 294-331.
4. N = 43.
5. CMI scales N's = 158-161, all other scales N's - 158-161.
6. CMI scales N's = 121, all other scales N's = 484-515.
7. N's = 318-340.
8. N's = 87-90.

*$p \leq .05$

**$p < .01$

Table B-2

Concurrent Validity of Diagnostic Signs of Occupational Information

Diagnostic Signs and Variables	Males			Females		
	Occupational Info. (LPI)			Occupational Info. (LPI)		
	H.S.	College	Adults	H.S.	College	Adults
Consistent Occupations	.04	-.01	.13	.07	.03	-.15
Differentiated Occupations	.14*	-.02	-.04	.16**	-.01	-.10
Vocational Attitude (Short Form)	.40**					
Managerial Skills (SR)						-.20
Choosing (CMI)	.36**			.35**		
Planning (CMI)	.41**			.31**		
Decided			.70**			-.20*
Realistic Competencies		.19**				
Social Summary Scale			.27			
Conventional Competencies					.17**	
Artistic Competencies						-.23*
Investigative Summary Scale			.27			
Investigative Competencies				.22**		

Note: The sample sizes for these correlations vary greatly. The footnotes give the N's for correlations involving CMI scales followed by N's for all other correlations.

1. CMI scales N's = 193-194, all other scales N's 337-341.
2. N = 341.
3. N's = 44-45.
4. CMI scales N's = 122-123, all other scales N = 335.
5. N = 347.
6. N's = 94-95.

*$p < .05$

**$p < .01$

Appendix C

Table C-1

Correlates of Indecision and Dissatisfaction Among High School Males (N = 146-176)

Student Responses	Anomy	Identity	I.C.	P.A.	SSVM[1]	Father's Educ.	Self-Estimates[2]	Voc. Info. (LPI)	Avg. Trans.[3]	Consis-tency	Differ-entiation	Profile Similarity[4]	Total Reasons[5]
Strengths & Weaknesses	18	-37	-10	-06	-18	-13	-06	-06	04	-02	01	01	50
Don't Know What Workers Do	00	-18	-18	-03	03	11	-03	02	-20	-11	-10	-10	42
Don't Know Employ-ment Opportunities	04	-07	-11	-14	05	-07	-01	09	-13	-15	03	01	40
Uncertain About Ability for Educ.	14	-25	-23	06	-09	01	-13	03	01	-10	-16	-10	30
Uncertain About Performance	10	-26	-22	-07	-11	-10	09	14	-08	03	00	04	58
Don't Have the Money	01	04	10	00	-12	05	-02	-20	-04	14	06	01	06
Uncertain What Occup.Would Enjoy	01	-27	-05	-08	-09	03	03	-20	10	-04	20	14	36
Not Sure Present Choice is Right	05	-14	-08	-01	09	16	04	04	-04	01	07	04	52
Don't Have to Decide Now	02	05	01	05	-07	-21	-05	08	-03	-01	04	09	09
Doubt Ability to Decide	06	-23	-07	12	-21	02	-19	-06	-08	12	03	09	41
Don't Know About Kinds of People	14	-13	-08	-06	-08	03	-10	-07	00	-10	-08	-13	46
Interested but Not Qualified	27	-16	-07	16	-16	-21	-03	02	-11	02	00	-08	29
Afraid to Make Bad Choice	15	-27	-16	11	-09	18	09	06	-04	-02	-07	-04	48
Total Reasons	21	-42	-17	01	-15	06	-14	08	-03	00	-02	00	

[1] Short, scattered vocational maturity scale (17 items). Note: Correlations of.15 or more $p < .05$; correlation of.21 or more $p < .01$.

[2] The sum of self-ratings on the combined self-estimates graphs of the SDS.

[3] Sum of Agreement indices on future possibilities blanks divided by number of responses made.

[4] Average rank correlation among the component profiles of the SDS

[5] Number of reasons for dissatisfaction or indecision marked for those not indicating satisfaction with their choice.

Table C-2

Correlates of Indecision and Dissatisfaction Among High School Females (N's 186-229)

Student Responses	Anomy	Identity	I.C.	P.A.	SSVM	Father's Educ.	Self-Estimates	Occup. Info. (LPI)	Avg. Trans.	Consis-tency	Differ-entiation	Profile Similarity	Total Reasons
Strengths & Weaknesses	21	-25	-09	-18	-25	-08	-16	00	04	-02	-02	-09	44
Don't Know What Workers Do	08	-16	-10	-16	-08	-10	00	03	00	-13	-08	-06	43
Don't Know Employ-ment Opportunities	04	-22	-22	01	-01	-02	-08	13	04	-06	-02	-06	40
Uncertain About Ability for Educ.	18	-15	-08	02	-18	04	-12	09	01	05	-04	-08	34
Uncertain About Performance	-04	-29	-17	-06	02	05	-04	11	-03	-08	04	04	48
Don't Have the Money	06	01	07	14	-05	00	-07	-04	02	07	-08	-06	11
Uncertain What Occup.Would Enjoy	03	-33	-28	-04	-02	09	-06	08	-02	-12	-04	00	52
Not Sure Present Choice is Right	03	-17	-16	-09	08	00	-12	11	01	-12	-04	-05	43
Don't Have to Decide Now	-11	01	-05	10	08	08	-09	02	10	06	06	15	17
Doubt Ability to Decide	19	-30	-25	03	-17	04	-17	09	03	-02	00	-05	55
Don't Know About Kinds of People	18	-20	-20	-14	-13	-12	-18	-08	04	-11	-14	-09	43
Interested but Not Qualified	-01	-14	-15	12	-21	06	-07	08	-09	05	04	-04	33
Afraid to Make Bad Choice	14	-32	-13	12	-13	-06	-14	08	00	-12	-03	-04	57
Total Reasons	08	-38	-18	04	-11	08	-07	20	03	-04	-01	03	

Note: Correlation of .15 or more equals $\leq .05$.

Table C-3

Correlates of Indecision and Dissatisfaction Among College Males (N's 84-94)

Student Responses	Anomy	Identity	I.C.	P.A.	SSVM	Father's Educ.	Self-Estimates	Occup. Info. (LPI)	Avg. Trans.	Consis-tency	Differ-entiation	Profile Similarity	Total Reasons
Strengths & Weaknesses	29	-51	-31	00	05	-16	-30	-07	-17	-07	-21	-13	56
Don't Know What Workers Do	06	-25	-24	-14	-01	-01	-09	-14	-24	-06	-06	-14	57
Don't Know Employ-ment Opportunities	13	-30	-17	-06	-10	-05	-02	08	-17	01	01	-06	62
Uncertain About Ability for Educ.	04	-22	02	03	05	-09	-21	14	-19	-07	-33	-22	37
Uncertain About Performance	20	-39	-26	-06	-09	16	-15	-03	-03	-08	-18	-20	51
Don't Have the Money	09	-12	08	05	-18	08	-03	00	-15	04	06	00	17
Uncertain What Occup.Would Enjoy	10	-28	-15	-14	03	-20	05	04	02	00	02	-08	41
Not Sure Present Choice is Right	34	-25	-23	-04	-11	-12	-09	-14	10	-12	-14	-06	33
Don't Have to Decide Now	-12	17	-02	-01	11	-06	01	04	-08	05	07	05	12
Doubt Ability to Decide	14	-27	-20	11	-04	-12	-29	-16	-26	-10	-14	-22	46
Don't Know About Kinds of People	22	-29	-10	-08	-14	-07	-07	-01	-19	-07	-10	-15	60
Interested but Not Qualified	06	-21	-13	05	02	05	-09	03	-05	05	-12	-13	40
Afraid to Make Bad Choice	27	-42	-20	05	-03	-18	-16	06	-10	-15	-09	-16	57
Total Reasons	24	-54	-16	06	-09	-11	-13	14	-09	-01	-01	-06	

Note: Correlation of .21 is <.05 level.

Table C-4

Correlates of Indecision and Dissatisfaction Among College Females (N's 62-79)

Student Responses	Anomy	Identity	I.C.	P.A.	SSVM	Father's Educ.	Self-Estimates	Occup. Info. (LPI)	Avg. Trans.	Consis-tency	Differ-entiation	Profile Similarity	Total Reasons
Strengths & Weaknesses	10	-32	-21	02	01	03	-04	16	-08	-25	-12	-11	30
Don't Know What Workers Do	14	-08	-26	-10	04	01	-07	-12	-11	-10	-03	01	42
Don't Know Employ-ment Opportunities	-07	05	01	-23	14	-13	03	-10	-08	-06	00	-06	35
Uncertain About Ability for Educ.	39	-27	-19	30	-45	-01	-10	08	-02	-02	-07	00	36
Uncertain About Performance	30	-35	-27	15	-33	-09	-20	26	-08	-05	-22	-27	67
Don't Have the Money	-07	09	03	08	-08	-17	-04	-18	-11	05	10	17	-01
Uncertain What Occup. Would Enjoy	12	-32	-26	12	-05	06	10	-01	-14	01	-19	-13	35
Not Sure Present Choice is Right	12	-38	-13	22	-12	-01	02	04	-11	-07	-09	-04	35
Don't Have to Decide Now	-18	20	18	-01	22	32	03	12	01	02	-04	-06	00
Doubt Ability to Decide	20	-35	-17	-03	00	20	02	-07	-05	-14	-11	-18	42
Don't Know About Kinds of People	18	-08	-21	-10	-16	-12	-06	03	05	04	-07	-10	52
Interested but Not Qualified	25	-27	-27	06	-48	-12	-12	10	-16	-04	-01	-18	31
Afraid to Make Bad Choice	40	-23	-18	-03	-36	11	-08	-17	02	-05	-14	-26	43
Total Reasons	35	-38	-31	04	-20	04	-14	24	-06	03	-09	-03	

Note: Correlation of .25 is < .05 level.

Appendix D

Table D-1

Adjusted Correlations Among Variables (N = 1,188)

Variable	R Score	I Score	A Score	S Score	E Score	C Score	SDS Diff.	SDS Consis.	VPI Diff.	VPI Consis.
R Score	3.427									
I Score	.099	3.991								
A Score	- .068	- .146	3.561							
S Score	- .305	- .283	- .019	2.931						
E Score	- .180	- .355	- .114	.232	3.289					
C Score	- .128	- .219	- .279	- .173	.145	3.994				
SDS Diff.	- .166	- .026	- .175	.151	- .136	- .216	2.051			
SDS Consis.	- .165	- .083	.252	.017	.125	- .170	.114	.637		
VPI Diff.	- .165	- .022	.044	.022	.010	- .141	.236	.127	3.003	
VPI Consis.	- .140	- .020	.204	.001	- .001	- .084	.053	.335	.102	.639
Commonness	- .067	- .086	.307	.237	- .095	- .359	.151	.566	.107	.240
Sum Self Est.	- .029	.075	.094	- .012	.161	.117	- .101	.007	.193	- .023
Pro Similarity	- .183	- .030	- .073	.182	- .062	- .175	.737	.142	.229	.049
Satisfaction	- .036	- .011	.008	.019	.026	.031	.032	.018	- .031	.028
Decided	.004	- .084	.075	.052	.053	.039	- .055	- .001	- .072	.013
Agreement	- .096	.102	.047	.026	- .141	- .119	.177	.101	.027	.059
Avg.Translation	- .005	.186	.070	.047	- .181	- .217	.211	.136	.067	.081

Variable	Commonness	Sum Self-Est.	Pro Sim.	Satis.	Decided	Agree	Avg. Trans.
Commonness	67.385						
Sum Self-Est.	- .034	7.373					
Pro Similarity	.122	- .105	.207				
Satisfaction	.012	- .028	.007	.931			
Decided	.007	- .054	- .058	.298	.351		
Agreement	.144	- .075	.176	- .068	- .108	1.630	
Avg.Translation	.207	- .105	.202	- .049	- .120	.478	987.193

Note: The correlations presented are within cells correlations with sex and sample source treated as factors and adjusted for father's education as a covariate. The standard deviations for each variable are on the diagonal.

Appendix E

Table E-1

Scale Used for Assessing the Agreement between a Person's SDS Summary Code and the Code of His Vocational Aspiration

Verbal Description	Chance Expectancy	Index
1st letter of SDS Summary Code is not included in other (e.g. RIC, CES)	.500	0
1st letter of SDS Summary Code matches any letter in the other code (e.g. RIC, CRE)	.500	1
1st and 2nd letters of SDS Summary Code match any two letters in the other code (e.g. RIC, IER)	.250	2
1st letter of SDS Summary Code matches first letter of other code (e.g. RIC, REA)	.167	3
All three letters of SDS Summary Code match letters of other code in any order (e.g. RIC, ICR)	.125	4
1st and 2nd letters of SDS Summary Code match 1st and 2nd letters of other code (e.g. RIC, RIE)	.033	5
Letters and order exactly the same (e.g. RIC, RIC)	.008	6

Note. Cases which fit more than one category are given the scale value of the highest category.